

WHAT IS CLAIMED IS:

1. A wireless terminal, comprising:
  - a short-range communication module that is configured to communicate first  
5 information over a short-range wireless interface with a communication device;
  - a cellular transceiver that is configured to communicate second information  
with a cellular network according to a cellular communication protocol;
  - a processor that is configured to encode the second information for  
transmission by the cellular transceiver according to a signal processing operation,  
10 and is configured to selectively encode the first information for communication by the  
short-range communication module using the signal processing operation based on  
whether the communication device supports an enhanced communication mode.
2. The wireless terminal of Claim 1, wherein the short-range  
15 communication module is configured to communicate the first information according  
to a Bluetooth communication protocol.
3. A wireless terminal, comprising:
  - a Bluetooth module that is configured to communicate first information with a  
20 remote Bluetooth device; and
  - a processor that is configured to selectively encode the first information for  
communication by the Bluetooth module based on whether the remote Bluetooth  
device supports an enhanced communication mode.
- 25 4. The wireless terminal of Claim 3, further comprising a cellular  
transceiver that is configured to communicate second information with a cellular  
network according to a cellular communication protocol, and wherein the processor is  
configured to encode the second information for transmission by the cellular  
transceiver according to a signal processing operation, and wherein the processor is  
30 configured to selectively encode the first information according to the signal  
processing operation for transmission by the Bluetooth module based on whether the  
remote Bluetooth device supports an enhanced communication mode.

5           5.       The wireless terminal of Claim 4, further comprising a voice encoder, and wherein the voice encoder codes the second information for transmission by the cellular transceiver and selectively encodes, based on whether the remote Bluetooth device supports an enhanced communication mode, the first information for transmission by the Bluetooth module.

          6.       The wireless terminal of Claim 4, first information comprises voice information, and wherein the signal processing operation compresses the voice information.

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          7.       The wireless terminal of Claim 4, wherein the first information comprises audio information, and wherein the signal processing operation cancels echo in the audio information.

15           8.       The wireless terminal of Claim 4, wherein the first information comprises audio information, and wherein the signal processing operation reduces noise in the audio information.

          9.       The wireless terminal of Claim 4, wherein the signal processing operation convolutionally codes the first information.

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          10.      The wireless terminal of Claim 4 wherein the signal processing operation interleaves the first information over time.

25           11.      The wireless terminal of Claim 3 wherein the processor is configured to selectively embed control data in the first information based on whether the remote Bluetooth device supports an enhanced communication mode.

          12.      The wireless terminal of Claim 3 wherein the remote Bluetooth device comprises a cordless telephone base station that is configured to be connected to a public switched telephone network (PSTN), and wherein the processor is configured to communicate through the Bluetooth module with the cordless telephone base station.

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13. The wireless terminal of Claim 12, wherein the processor is configured to selectively embed control data in the first information based on whether the remote Bluetooth device supports an enhanced communication mode, and wherein the control  
5 data comprises a command for the cordless telephone base station.

14. The wireless terminal of Claim 13, wherein the control data instructs the cordless telephone base station to terminate a call on the PSTN.

10 15. A method of operating a wireless terminal, comprising:  
determining whether a remote Bluetooth device supports an enhanced communication mode;  
selectively encoding first information for communication to the remote Bluetooth device based on whether the remote Bluetooth device supports an enhanced  
15 communication mode; and  
communicating the first information to the remote Bluetooth device.

16. The method of Claim 15, further comprising:  
encoding second information according to a signal processing operation for  
20 transmission to a cellular network;  
selectively encoding the first information according to the signal processing operation for transmission to the remote Bluetooth device based on whether the remote Bluetooth device supports an enhanced communication mode.

25 17. The method of Claim 16, further comprising using a voice encoder to encode the second information for transmission to the cellular network and to selectively encode, based on whether the remote Bluetooth device supports an enhanced communication mode, the first information for transmission to the remote Bluetooth device.

30 18. The method of Claim 16, wherein the first information comprises voice information, and selectively encoding the first information according to the signal processing operation comprises compressing the voice information.

19. The method of Claim 16, wherein the first information comprises audio information, and selectively encoding the first information according to the signal processing operation comprises canceling echo in the audio information.

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20. The method of Claim 16, wherein the first information comprises audio information, and selectively encoding the first information according to the signal processing operation comprises reducing noise in the audio information.

10 21. The method of Claim 16, wherein selectively encoding the first information according to the signal processing operation comprises convolutionally coding the first information.

22. The method of Claim 16, wherein selectively encoding the first  
15 information according to the signal processing operation comprises interleaving the first information over time.

23. The method of Claim 15, further comprising selectively embedding control data in the first information based on whether the remote Bluetooth device  
20 support an enhanced communication mode.

24. The method of Claim 15, wherein the remote Bluetooth device comprises a cordless telephone base station that is configured to be connected to a public switched telephone network (PSTN), and communicating the first information  
25 to the remote Bluetooth device comprises communicating the first information to the cordless telephone base station.

25. The method of Claim 24, further comprising selectively embedding control data in the first information based on whether the remote cordless telephone  
30 base station supports an enhanced communication mode, and wherein the control data comprises a command for the cordless telephone base station.